WHAT IS CLAIMED IS:

1. A weight scale comprising:

a load cell attachable to a support housing;

a spring coupled to the load cell to apply a force to the load cell;

a scale beam connected to the spring and at a proximal end connectable to the support housing, and

an overload protection bore comprising an aperture through which extends said beam and said aperture having at least one edge in a path of said beam, wherein said edge terminates said path and the beam reaches a maximum rated load position in the path before the edge.

2. A weight scale as in claim 1 wherein the proximal end of the beam is connected to the support housing vial a fulcrum pin and the beam pivots with respect to the housing.

3. A weight scale as in claim 1 wherein the spring is connected to a distal end of the beam.

4. A weight scale as in claim 1 wherein the bore aperture has edges on all sides of said beam, and said edges prevent excessive displacement of the beam.

5. A weight scale as in claim 1 further comprising an adjustable attachment between the spring and at least one of

the beam and load cell, wherein said adjustable attachment establishes an unloaded position of the beam.

6. A weight scale as in claim 1 wherein said overload protection bore comprises an aperture through which extends said beam and said aperture having at least one edge in a path of said beam, wherein said edge terminates said path and the beam has maximum rated load position in the path before the edge.

7. A method for compensating for non-linear displacement of a beam in a weight scale having a load cell, the method comprising:

a. coupling a distal end of the beam to the load cell mounted such that a weight applied to the beam causes a force to be applied to the cell;

b. the force applied to the cell causes the strain gauge to generate a signal non-linearly related to the weight; and

c. processing the signal from the strain to compensate for the non-linearity of the signal by deriving a correction factor from a lookup table having a series of correction factors for various known weights, wherein the correction

factors account for the non-linearity of the beam displacement.

8. A method as in claim 7 wherein the processing includes determination of a displayed weight (Wdisplayed) as follows:

Wdisplayed = (Cweight - Offset)* Gweight * Kw

where Cweight is derived from the signal from the strain gauge; Offset is a constant value determined upon calibration of the weight scale; Gweight is the gain of the weight scale determined at the time of calibration and Kw is an interpolated correction factor extrapolated from a lookup table based upon a calculated weight using a linear model Vs a correction factor.

9. A method as in claim 8 wherein calibration of a nonlinear weight scale is determined using a single calibration weight.